

What is Claimed is:

1 Sub A1 1. A temperature control system for heating medical items to desired
2 temperatures comprising:

3 a system housing;

4 a heating chamber disposed within said housing for receiving at least one
5 medical item and heating said at least one medical item to a desired temperature,
6 wherein said heating chamber includes:

7 at least one receptacle each for receiving a corresponding medical
8 item and heating said corresponding medical item to said desired
9 temperature, wherein said each receptacle is defined by a first thermally
10 conductive wall and a plurality of secondary thermally conductive walls;

11 a temperature sensor for measuring a temperature of said heating
12 chamber; and

13 a heater for applying heat to said first wall of each said receptacle;

14 wherein said secondary walls of said each receptacle are arranged to
15 conduct heat from the first wall of said each receptacle and distribute said
16 conducted heat about said corresponding medical item contained within that
17 receptacle to heat said corresponding medical item to said desired
18 temperature; and

19 a controller to facilitate entry of said desired temperature for said heating
20 chamber and to control said heater to heat said at least one medical item to said
21 desired temperature in response to said temperature measured by said temperature
22 sensor.

1 2. The system of claim 1 wherein said heating chamber further includes
2 a drawer having said at least one receptacle and a pivoting mechanism for pivoting
3 said drawer relative to said housing to facilitate entry and removal of said drawer
4 within said system.

1 3. The system of claim 2 wherein said drawer includes a window to enable
2 viewing of said at least one medical item within said heating chamber during heating.

1 4. The system of claim 1 wherein said heater is configured to cover a
2 portion and less than the entirety of said first wall of said each receptacle.

1 5. The system of claim 1 further including:
2 a plurality of said heating chambers each for receiving at least one medical
3 item and heating said at least one medical item to a corresponding desired
4 temperature; and
5 a plurality of controllers each associated with a respective heating chamber
6 to facilitate entry of a desired temperature for that heating chamber and to control
7 said heater of said respective heating chamber to heat at least one medical item
8 contained within that heating chamber to said corresponding desired temperature in
9 response to a temperature measured by said temperature sensor associated with
10 said respective heating chamber.

1 6. The system of claim 5 wherein at least two of said heating chambers
2 are associated with different respective desired temperatures.

1 7. The system of claim 1 further including:
2 a plurality of said heating chambers each for receiving at least one medical
3 item and heating said at least one medical item to a corresponding desired
4 temperature;
5 wherein said controller facilitates entry of a desired temperature for each
6 heating chamber and controls said heater of said each heating chamber to heat said
7 at least one medical item contained within that heating chamber to said
8 corresponding desired temperature in response to a temperature measured by said
9 temperature sensor associated with that heating chamber.

1 8. The system of claim 7 wherein at least two of said heating chambers
2 are associated with different respective desired temperatures.

1 9. The system of claim 1 further including medical equipment fastened to
2 said system housing.

1 Sub A3
2 10. The system of claim 1 further including a support mechanism to
suspend said system from a support structure.

1 11. The system of claim 10 wherein said support mechanism includes:
2 a structure member disposed on said support structure and having a base
3 and an engagement member protruding from said base; and
4 a system member disposed on said system housing and having a receptacle
5 for receiving said engagement member to suspend said system from said support
6 structure.

1 12. The system of claim 11 wherein said support structure is an
2 intravenous pole.

1 13. The system of claim 12 wherein said structure member further includes
2 a pair of plates each having a groove defined therein, wherein said base is fastened
3 to one of said plates and said plates are disposed about said pole with said pole
4 positioned in said grooves to fasten said structure member to said pole.

1 14. The system of claim 10 further including a transportable device, wherein
2 said support structure suspending said system is disposed on said transportable
3 device to facilitate system mobility.

1 15. A temperature control system for heating medical items to desired
2 temperatures comprising:
3 a support structure;
4 a plurality of temperature control units, wherein each temperature control unit
5 includes:
6 a housing;
7 at least one heating chamber disposed within said housing for receiving
8 at least one medical item and heating said at least one medical item to a
9 desired temperature;
10 at least one temperature sensor for measuring a temperature of a

11 corresponding heating chamber;
12 at least one heater for heating a corresponding heating chamber; and
13 at least one controller to facilitate entry of a desired temperature for
14 each heating chamber and to control each heater to heat said at least one
15 medical item within said each heating chamber to said desired temperature
16 associated with that chamber in response to said temperature measured by
17 a corresponding temperature sensor; and
18 a plurality of support mechanisms for suspending respective temperature
19 control units from said support structure.

1 16. The system of claim 15 wherein:
2 said support structure includes a plurality of sequential sections;
3 at least one of said temperature control units is suspended from a respective
4 section of said support structure, thereby forming respective tiers; and
5 said tiers are arranged in stacked relation to suspend said plurality of
6 temperature control units from said support structure.

1 17. The system of claim 15 further including a transportable device, wherein
2 said support structure suspending said plurality of temperature control units is
3 disposed on said transportable device to facilitate system mobility.

1 Sub P4 18. In a temperature control system including a system housing and a
2 heating chamber disposed within said housing and having at least one receptacle for
3 receiving a corresponding medical item, wherein each receptacle is defined by a first
4 thermally conductive wall and a plurality of secondary thermally conductive walls, a
5 method of heating medical items to a desired temperature comprising the steps of:
6 (a) receiving at least one medical item within said at least one receptacle;
7 (b) measuring a temperature of said heating chamber via a temperature
8 sensor;
9 (c) applying heat to said first wall of each receptacle via a heater;
10 (d) conducting heat from said first wall of each receptacle, via respective
11 secondary walls, to distribute said conducted heat about a corresponding medical

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12 item contained within that receptacle to heat said corresponding medical item to said
13 desired temperature;

14 (e) facilitating entry of said desired temperature for said heating chamber, via
15 a controller, and controlling said heater to heat said at least one medical item to said
16 desired temperature in response to said temperature measured by said temperature
17 sensor.

1 19. The method of claim 18 wherein said heating chamber further includes
2 a drawer having said at least one receptacle, and step (a) further includes:

3 (a.1) pivoting said drawer relative to said housing to facilitate entry and
4 removal of said drawer within said system.

1 20. The method of claim 19 wherein said drawer includes a window, and
2 step (a) further includes:

3 (a.2) viewing said at least one medical item within said heating chamber
4 through said window during heating.

1 21. The method of claim 18 wherein step (c) further includes:

2 (c.1) applying heat to a portion and less than the entirety of said first wall of
3 each said receptacle.

1 22. The method of claim 18 further including a plurality of said heating
2 chambers for receiving at least one medical item and a plurality of controllers
3 associated with corresponding heating chambers, and wherein step (a) further
4 includes:

5 (a.1) receiving said at least one medical item within each heating chamber;

6 step (b) further includes:

7 (b.1) measuring a temperature of each heating chamber via a corresponding
8 temperature sensor;

9 step (c) further includes:

10 (c.1) applying heat within each heating chamber, via a corresponding heater,
11 to said first wall of said each heating chamber receptacle;

12 step (d) further includes:

13 (d.1) conducting heat from said first wall of each heating chamber receptacle,
14 via respective secondary walls, to distribute said conducted heat about a
15 corresponding medical item contained within that receptacle to heat said
16 corresponding medical item to said desired temperature; and

17 step (e) further includes:

18 (103) (e.1) facilitating entry of a desired temperature for each heating chamber, via
19 a corresponding controller, and controlling said heater of said corresponding heating
20 chamber to heat said at least one medical item contained within that heating
21 chamber to said corresponding desired temperature in response to a temperature
22 measured by said temperature sensor associated with said corresponding heating
23 chamber.

1 23. The method of claim 22 wherein step (e) further includes:

2 (e.2) entering different desired temperatures for at least two of said heating
3 chambers.

1 24. The method of claim 18 further including a plurality of said heating
2 chambers each for receiving at least one medical item, and step (a) further includes:

3 (a.1) receiving said at least one medical item within each said heating
4 chamber;

5 step (b) further includes:

6 (b.1) measuring a temperature of each heating chamber via a corresponding
7 temperature sensor;

8 step (c) further includes:

9 (c.1) applying heat within each heating chamber, via a corresponding heater,
10 to said first wall of each heating chamber receptacle;

11 step (d) further includes:

12 (d.1) conducting heat from said first wall of each heating chamber receptacle,
13 via respective secondary walls, to distribute said conducted heat about a
14 corresponding medical item contained within that receptacle to heat said
15 corresponding medical item to said desired temperature; and

16 step (e) further includes:

17 ^{sub 4.5 unit} (e.1) facilitating entry of a desired temperature for each heating chamber, via
18 said controller, and controlling said heater of each said heating chamber to heat said
19 at least one medical item contained within that heating chamber to said
20 corresponding desired temperature in response to a temperature measured by said
21 temperature sensor associated with that heating chamber.

1 25. The method of claim 24 wherein step (e) further includes:

2 (e.2) entering different desired temperatures for at least two of said heating
3 chambers.

1 26. The method of claim 18 wherein step (a) further includes:

2 (a.1) fastening medical equipment to said housing.

1 27. The method of claim 18 wherein said system further includes a support
2 mechanism, and step (a) further includes:

3 (a.1) suspending said system from a support structure via said support
4 mechanism.

1 28. The method of claim 27 wherein said support mechanism includes a
2 structure member disposed on said support structure and having a base and an
3 engagement member protruding from said base, and a system member disposed on
4 said system housing and having a receptacle, and step (a.1) further includes:

5 (a.1.1) receiving said engagement member within said receptacle to suspend
6 said system from said support structure.

1 29. The method of claim 28 wherein said support structure is an
2 intravenous pole and said structure member further includes a pair of plates each
3 having a groove defined therein, wherein said base is fastened to one of said plates
4 and step (a.1.1) further includes:

5 (a.1.1.1) disposing said plates about said pole with said pole positioned in
6 said grooves to fasten said structure member to said pole.

1 30. The method of claim 27 wherein said system further includes a
2 transportable device, and step (a.1) further includes:

3 (a.1.1) disposing said support structure suspending said system on said
4 transportable device to facilitate system mobility.

1 31. In a temperature control system including a support structure, a plurality
2 of temperature control units and a plurality of support mechanisms, wherein each
3 temperature control unit includes a housing and at least one heating chamber
4 disposed within said housing for receiving at least one medical item and heating said
5 at least one medical item to a desired temperature, a method of heating numerous
6 medical items to desired temperatures comprising the step of:

7 (a) suspending each temperature control unit from said support structure via
8 a corresponding support mechanism to heat medical items placed within said units.

1 32. The method of claim 31 wherein said support structure includes a
2 plurality of sequential sections, and step (a) further includes:

3 (a.1) suspending at least one of said temperature control units from each said
4 section of said support structure, thereby forming respective tiers; and

5 (a.2) arranging said tiers in stacked relation to suspend said plurality of
6 temperature control units from said support structure.

1 33. The method of claim 31 wherein said system further includes a
2 transportable device, and step (a) further includes:

3 (a.1) disposing said support structure suspending said plurality of
4 temperature control units on said transportable device to facilitate system mobility.

1 *Sub A* 34. In a temperature control system having at least one receptacle each
2 for receiving a corresponding medical item, wherein each said receptacle is defined
3 by a plurality of walls, a method of heating medical items to a desired temperature
4 comprising the step of:

5 (a) applying heat to a first wall of each said receptacle and conducting said
6 applied heat from said first wall to remaining walls of that receptacle to distribute said

conducted heat about a corresponding medical item contained within that receptacle
to heat said corresponding medical item to said desired temperature.

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